

We claim:

1. A process for preparing isocyanates by reaction of amines with phosgene in the presence of inert organic solvents in a reactor and subsequent work-up of the reaction mixture leaving the reactor, wherein the solvent is separated off in a two-stage or multistage distillation process in which the solvent is separated off at a pressure of from 0.1 to 15 bar in a first apparatus and at from 1 to 900 mbar in a second apparatus or further apparatuses, with the pressure level in the second apparatus being lower than in the first apparatus; the temperature at the bottom of the first column being, depending on the pressure, in the range from 60°C at 0.1 bar to 270°C at 15 bar and the temperature at the bottom of the second column being, depending on the pressure, in the range from 75°C at 1 mbar to 250°C at 900 mbar and the heat of condensation of the solvent vapor from the first apparatus being used for partial or complete vaporization of solvent in the second apparatus.
2. A process as claimed in claim 1, wherein distillation columns are used as apparatuses for separating off the solvent.
3. A process as claimed in claim 1 or 2, wherein the pressure in the first apparatus is from 0.5 to 3 bar.
4. A process as claimed in any of claims 1 to 3, wherein the pressure in the second apparatus is from 50 to 500 mbar.
5. A process as claimed in any of claims 1 to 4, wherein a heat exchanger is used as apparatus for transferring heat from the vapor from one apparatus to the liquid phase of the following apparatus.
6. A process as claimed in any of claims 1 to 5, wherein a purification by distillation of the solvent is subsequently carried out at pressures of from 0.5 bar to 3 bar.
7. A process as claimed in any of claims 1 to 6, wherein the thermal coupling is achieved by means of a flow-through vaporizer, preferably a falling film evaporator, long-tube evaporator or thin film evaporator.

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8. A process as claimed in any of claims 1 to 7, wherein the solvent used is chlorobenzene, dichlorobenzene or a mixture of the two or toluene.

5 9. A process as claimed in any of claims 1 to 8, wherein the
isocyanate is tolylene diisocyanate (TDI), methylene-4,4'-,
-2,4'- or -2,2'-di(phenyl isocyanate) (MDI) or a mixture of
these isomers or polymethylenepolyphenylene polyisocyanate
(PMDI) or a mixture of MDI and PMDI or hexamethylene
10 diisocyanate (HDI) or isophorone diisocyanate (IPDI).

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